

WHAT IS CLAIMED IS:

1. A dermal tissue grafting system comprising:

a tissue particle harvester assembly for cutting tissue particles from dermal tissue;  
a tissue particle collector for receiving, separating and collecting the tissue particles; and  
a chambered dressing for receiving the collected tissue particles and culturing the growth of a dermal tissue graft.

2. The dermal tissue grafting system of claim 1, wherein the tissue particle harvester assembly comprises:

a harvester housing having an interior space, the housing for interfacing with a dermal tissue sample from which tissue particles are to be harvested, and for holding a tissue cutting tool in a proper position relative to the dermal tissue sample;  
a tissue cutting tool having a cutting surface, the cutting surface for interfacing with and cutting tissue particles of an appropriate size from the tissue sample; and  
a drive means for rotating the tissue-cutting tool.

3. The tissue particle harvester assembly of claim 2, wherein the harvester housing has an orifice for pressing against and receiving a dermal tissue layer of the tissue sample.

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Inventors: Eriksson, et al.

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4. The tissue particle harvester assembly of claim 2, wherein the tissue-cutting tool further comprises a rotatable shaft having a drive end for engaging the drive means and a tool end for mounting the tissue-cutting surface.

5. The tissue particle harvester assembly of claim 3, wherein a portion of said tissue-cutting surface projects from said orifice, and wherein said orifice is adjustably engaged with said harvester such that said tissue-cutting surface projects from said harvester in the range of about 0.01 – 0.9mm.

6. The tissue particle harvester assembly of claim 3, wherein said drive end is adjustable to project a portion of said tissue-cutting surface through said orifice of said harvester a distance in the range of about 0.01 – 0.9mm.

7. The tissue particle harvester assembly of claim 2, wherein the tissue cutting tool further comprises a rotatable shaft having a drive end for engaging the drive means and a tool end for mounting a cutting drum, the cutting drum having an axis disposed coaxially with the tool end of the rotatable shaft and having an outer circumferential surface defined by the tissue cutting surface and an end-to-end width closely receivable in a width of the interior space of the housing.

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8. The tissue particle harvester assembly of claim 2, wherein the tissue cutting tool further comprises a rotatable shaft having a drive end for engaging the drive means and a tool end for mounting a cutting drum, the cutting drum having an axis disposed coaxially with the tool end of the rotatable shaft and having an outer circumferential surface and a diameter closely receivable in a width of the interior space of the housing, and having a drum end-disk distal from the drive end of the rotatable shaft, the drum end-disk defined by the tissue cutting surface.

9. A method for using a dermal tissue grafting system comprising the steps of:

- accessing a dermal tissue sample with a tissue harvester assembly of claim 1;
- processing the tissue sample using the tissue harvester assembly to produce tissue particles;
- collecting the tissue particles from the tissue harvester assembly in a tissue particle collector; and
- seeding a chambered dressing with the collected tissue particles from the particle collector and culturing the growth of a dermal tissue graft.

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